

Based on the data available to date, EA anticipates the RI activities to take place in a phased approach, as outlined below:

- 1) Mobilization Event 1 will entail the following:
 - a) Clearing two properties: Processing Area (former Wilcox Refinery) and Northern Process Area (southern portion of former Lorraine Refinery)
 - b) Waste on ground surface in all areas (Wilcox, Lorraine, North Tank Farm, Loading Dock and East Tank Farm:
 - i) Delineate waste areas using a hand-held GPS unit to determine the lateral extent of area where waste disposal is visible
 - ii) Collect discrete waste samples and analyze them for all site COPCs, performing analysis by TCLP extraction for VOC, SVOC, metals, pesticides, so a comparison can be made with the standards on the RCRA list of compounds. In addition, the samples would be analyzed for ignitability, pH and, if required by facility where they may be disposed of, for cyanide and sulfide
 - iii) Propose to collect 1 to 5 waste samples dependent upon areal extent of the waste; waste samples will span the entire vertical horizon of the waste, with the aliquot for analysis of volatile-type compounds collected prior to homogenization of the sample material and from a depth of at least 2 inches below the top of the waste; if the thickness of the waste material is less than 2 inches, collect the aliquot for volatile-type analysis from the bottom of the horizon
 - iv) Collect two (2) soil samples underneath each of the waste samples (collocated, to assess if leaching occurred into the closest environmental medium); these samples will only be collected at locations where waste is easily accessible; collect one soil sample from the interval 0-1 ft bgs and one sample from 1-2 ft bgs, and to ensure that no waste is incorporated in the sample, the top 1-2 inches of the soil column will be removed; in places where soil is not accessible, the soil samples will be collected after a removal action took place
 - c) Collect soil samples for assessment of background, as follows:
 - i) Select a location where, based on historical photographs and potential to migration of contamination, anthropogenic activities are not expected to have impacted the surface or subsurface soil
 - ii) Propose collection of 10-16 samples at depths that will be determined based on how variable is the composition of the subsurface
 - iii) Place a grid with cells 5 ft by 5 ft of a size dependent of the number of samples to be collected for each horizon; determine the centers of the 10-16 cells as the sample locations
 - iv) Propose collection of samples from the following horizons: 0-2 ft bgs and 4-5 ft bgs; metals concentrations in the samples from 4-5 ft bgs would be representative of the background concentrations for all subsurface samples
 - v) Analyze the samples from 0-2 ft bgs for TAL metals and PAHs (PAHs to be used as an indicator of anthropogenic activity) and the samples from 4-5 ft bgs for TAL metals
 - vi) Perform a background evaluation for each horizon as per most recent EPA guidance: (1) ProUCL Version 4.1.00, Technical Guide (Draft), National Exposure Research Lab, USEPA, Las Vegas Nevada, May 2010.

- (2) ProUCL Version 4.1, User Guide (Draft), Technology Support Center, USEPA, Atlanta, GA, May 2009.
- (3) Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003-OSWER 9285.7-41. September 2002
- d) Implement the sediment and surface water sampling program as approved
- e) Evaluate groundwater at the location of the two existing wells; measure the thickness of LNAPL, if present, using an interface probe and confirm this thickness using a clear bailer; gauge depth to water; collect samples of groundwater and product (if present); no purging is proposed at this time
- f) Perform the vapor intrusion sampling, as discussed and approved
- g) Confirm the usability of the screening data obtained by ROST LIF; a detailed plan for approach will be provided separately, but the general approach is as follows:
 - (1) Install borings at up to 12 locations where the highest concentrations were indicated by the ROST LIF screening; locations will be selected such that the variability of the COPCs based on location will be captured in the distribution; the highest impact will be indicative of the locations where migration occurred and where other contaminants, that are not “seen” by the technology, are more likely to be present in conjunction with the ones that are detected by it
 - (2) Collect samples from these soil borings from the most contaminated horizon, but focus the sampling within the 1-10 ft bgs interval so they are usable for risk evaluation, or from the bottom of the boring, so they are usable for determination of migration. Targeted intervals are 0-1 ft bgs, 1-2 ft bgs, 4-5 ft bgs, and the bottom of the boring, if refusal is encountered deeper than 5 ft
 - (3) Install borings in the vicinity of the 12 borings discussed above in areas where contamination was not observed by ROST LIF; collect samples in the same manner as discussed above; these sample results will be utilized to see if low-level contamination may be missed by the technology
 - (4) Analyze the soil samples for the site COPCs and obtain preliminary results in a short turnaround time, such that an evaluation can be made if the results of the ROST LIF technology can be used to delineate contamination laterally and vertically
 - (5) If ROST data are adequate, starting with the areas where contamination is present, start step out in a grid-like fashion; collect soil samples from the most contaminated areas and from the periphery for the purpose of completing the delineation from 0-1 ft bgs, 1-2 ft bgs, 4-5 ft bgs, and the bottom of the boring
 - (6) If the ROST data are adequate, expand the investigation to the areas where ROST was not utilized in December 2015.
- h) Characterize the cooling pond; details on the sampling approach will be provided separately.
- 2) Mobilization Event 2 will entail the following:
 - a) Soil sampling in-between the areas delineated by ROST LIF
 - b) Fill in gaps in the lateral and vertical delineation of soil, after we receive analytical data for samples collected during mobilization 1
 - c) Based on initial groundwater sampling information, monitoring well installation, development, sampling, survey; gather information for the characterization of the hydrologic regime; it will be assessed if seasonal fluctuations need to be addressed

- d) Step out downstream in case surface water and sediment samples indicate impact is not delineated
 - e) Samples for ecological assessment (fish, plant, TOX if warranted); locations will be selected based on soil/sediment/surface water analytical results
- 3) Mobilization Event 3, if deemed necessary, will entail further delineation of impact to groundwater and more gauging to assess seasonal variations